What is claimed is:

1. An apparatus for controlling an output current that is delivered to a load, the apparatus comprising:

a first transistor circuit that is coupled between a first node and a second node, wherein the first transistor circuit has a control terminal that is coupled to a third node;

a sense resistor circuit that is coupled between the second node and the load, wherein the sense resistor circuit is arranged to generate a first voltage drop in response to the output current;

a reference resistor circuit that is coupled between the second node and a fourth node, wherein the reference resistor circuit is arranged to generate a second voltage drop in response to a reference current;

a first amplifier circuit that has an input that is coupled to the load, another input that is coupled to the fourth node, and an output that is coupled to third node, wherein the first amplifier circuit is arranged to cooperate with the first transistor circuit to control the output current such that the first voltage drop is approximately equal to the second voltage drop; and

a temperature compensated reference current generator circuit that is coupled to the fourth node, wherein the temperature compensated reference current generator circuit is arranged to dynamically adjust the reference current such that the output current is stabilized with respect to an operating temperature of the apparatus.

2. The apparatus of Claim 1, wherein the sense resistor and the reference resistor are arranged such that they share thermal characteristics that are similarly affected by the operating temperature of the apparatus.

3. The apparatus of Claim 1, the temperature compensated reference current generator circuit comprising: a zero dependency on absolute temperature current generator circuit that is arranged to provide a portion of the reference current.

4. The apparatus of Claim 3, the zero dependency on absolute current generator circuit further comprising a first current mirror bank that is arranged to provide the portion of the reference circuit.

5. The apparatus of Claim 3, the zero dependency on absolute temperature current generator circuit comprising: a load resistor circuit, a second transistor circuit, and a second amplifier circuit, wherein the load resistor circuit is coupled to the second transistor circuit, and wherein the second amplifier circuit includes an input that is coupled to the load resistor, another input that is coupled to a reference voltage, and an output that is coupled to a control terminal of the second transistor circuit such that the operating current of the second transistor circuit is approximately independent of temperature variations.

6. The apparatus of Claim 3, the zero dependency on absolute temperature current generator circuit comprising: a load resistor circuit, a second transistor circuit, a second amplifier circuit, and a reference circuit, wherein the load resistor circuit is coupled to the second transistor circuit, and wherein the second amplifier circuit includes an input that is coupled to the load resistor, another input that is coupled to a reference voltage from the reference circuit, and an output that is coupled to a control terminal of the second transistor circuit such that the operating current of the second transistor circuit is approximately independent of temperature variations.

7. The apparatus of claim 6, wherein the reference circuit is a band-gap circuit.

8. The apparatus of Claim 1, the temperature compensated reference current generator circuit comprising: a zero dependency on absolute temperature current generator circuit that is arranged to provide a first portion of the reference current, and a proportional to absolute temperature current generator circuit that is arranged to provide a second portion of the reference current.

9. The apparatus of Claim 8, wherein the first and second portions are adjusted by a trimming mechanism such that the temperature characteristics of reference current are dynamically adjusted to stabilize control of the output current.

10. The apparatus of Claim 1, the temperature compensated reference current generator circuit comprising: a zero dependency on absolute temperature current generator (IZTAT) circuit, a summer circuit, and a proportional to absolute temperature current generator (IPTAT) circuit, wherein the summer circuit is arranged to provide the reference current (IREF) as a combination of the IPTAT current and the IZTAT current.

11. The apparatus of Claim 10, the IPTAT circuit comprising: a current mirror bank that is arranged to adjust a level associated with the IPTAT current.

12. The apparatus of Claim 11, the current mirror bank comprising an array of binary weighted transistors that are selectively enabled to adjust the level associated with the IPTAT current.

13. The apparatus of Claim 1, the temperature compensated reference current generator circuit is arranged to provide the reference current (IREF) that is given by: IREF = X*IZTAT + Y*IPTAT, wherein IZTAT is a first current that has a zero dependency on absolute temperature, IPTAT is a second current that is proportional to absolute temperature, X is a first scaling factor, and Y is a second scaling factor.

14. The apparatus of Claim 13, wherein scaling factors X and Y are selected to adjust the temperature characteristics of the reference current, and Y corresponds to at least one: of a positive number, a negative number, a positive integer, and a negative integer.

15. The apparatus of Claim 13, wherein the load corresponds to at least one battery cell.

16. An apparatus for controlling an output current that is delivered to a load, the apparatus comprising:

a temperature compensation means that is arranged to provide a reference signal that is dynamically adjusted in response to changes in the operating temperature of the apparatus;

a current control means that is coupled between a power source and the load, wherein the current control means is couple the output current to the load in response to a control signal;

a comparison means that is arranged to sense a first signal and a second signal, and dynamically adjust the control signal until the first signal and the second signal are approximately matched;

a sense means that is coupled between the current control means and the load, wherein the sense means is arranged to provide the first signal such that the first signal is related to a level associated with the output current; and

a reference means that is coupled between the temperature compensation means and the sense means, wherein the reference means is arranged to generate the second signal.

17. The apparatus of claim 15, wherein the reference signal corresponds to a current (IREF) that is determined by the sum of (X*IZTAT) and (Y*IPTAT), wherein IZTAT is a first current that has a zero dependency on absolute temperature, IPTAT is a second current that is proportional to absolute temperature, X is a first scaling factor, and Y is a second scaling factor.

18. The apparatus of claim 17, the reference means further comprising a trimming mechanism that is arranged to adjust at least one of the first scaling factor (X) and the second scaling factor (Y) in response to a trimming control signal (TRIM), wherein the at least one adjusted scaling factor is adjusted by changing an effective reflection coefficient in at least one current mirror means.

19. An apparatus for providing a reference current to a resistor, comprising:

a first current generator circuit that is arranged to provide a first current (X*IZTAT) that has a zero dependency on absolute temperature;

a second current generator circuit that is arranged to provide a second current (Y*IPTAT) that is proportional to absolute temperature; and

a summer circuit that is arranged to provide the reference current (IREF) to the resistor as given by: IREF = X*IZTAT + Y*IPTAT.

20. The apparatus of claim 19, the first current generator circuit comprising: an amplifier circuit and a first current mirror bank, the second current generator circuit comprising a second current mirror bank, wherein the amplifier circuit is arranged to control the first current mirror bank with a bang-gap voltage such that the first current (X*IZTAT) in relatively independent of absolute temperature, and wherein the first current mirror bank and the second current mirror bank are coupled to the summer circuit such that the first and second currents are combined to provide the reference current.